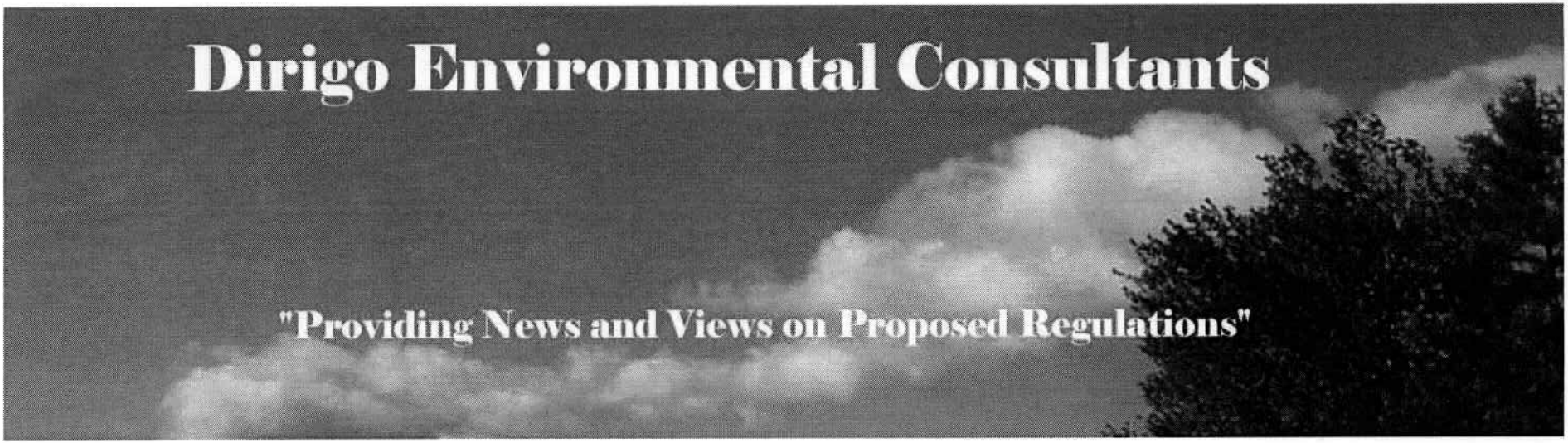

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NEWS

Key Environmental Issues in U.S. EPA Region 1 (from home page)

Staying ahead of the curve is important in assisting clients to anticipate future regulations and requirements that affect decisions today. David attended the May 8, 2007 conference on "*Key Environmental Issues in U.S. EPA Region 1*" sponsored by the American Bar Association's Section of Environment, Energy and Resources where the EPA Regional Administrator, Regional Counsel, EPA General Counsel and each of the New England Commissioners of Environmental Protection discussed priorities and directions of each of their programs. At this conference, David was the moderator for the panel on "Air and Climate", where several timely issues were presented: coordination of energy and environmental programs, regional greenhouse gas initiative (RGGI), proposed changes to EPA rules for "once in always in" affecting both the PSD and MACT regulations, and the Maine Air Toxics Initiative as a demonstration project. David is also an active member of the New England section of the Air and Waste Management Association (A&WMA) where he has been elected for several terms as a member of its Board of directors. He has coordinated several local dinner meetings for the Association in Maine.

Outdoor Wood Boilers (from news on home page)

David Dixon testified before the Maine Legislature's Committee on Natural Resources on April 26, 2007, concerning a number of bills aimed at regulating outdoor wood boilers (OWB) in Maine. He noted that regulation of these sources is important as the number of OWB has grown dramatically in the last couple of years. The Maine Air Toxics Initiative (MATI) toxicity weighted emissions inventory indicates that OWB are a developing concern. He pointed out that regulation is difficult in order to deal with existing installations that are creating nuisance conditions and urged the Committee to recognize the improvements in air quality in Maine achieved through reliance of a philosophy of requiring new or modified

sources to use the "best available control technology" (BACT).A copy of this testimony is available here.

Archieved News and Views

VIEWS

MEMO

To: MATI Emissions Inventory Subcommittee

From: David Dixon

Date: November 1, 2005

Subject: Dealing with the Uncertainty of Acrolein Emissions in MATI Inventory

This memo summarizes the case I have made repeatedly that I believe the current proposed version of the MATI Inventory greatly over-estimates the amount of acrolein emitted in Maine. The case illustrates the importance of accounting for the confidence interval surrounding estimates of both emissions and toxicity in the MATI process. In an attempt to be conservative in applying values to represent the possible worst case for acrolein, where there is clearly a high degree of uncertainty, its risk is so high that it trivializes the importance of all other compounds where, for some, we have much greater confidence in both emissions and toxicity factors. This results in uncertainty becoming more important than quantifiable toxicity-weighed emissions or even risk.

Reasonableness of the Inventory

The decision to use the AP-42 emission factor for acrolein results in a skewed inventory as shown ion Table 1. The revised MATI Inventory leads to the conclusion that point sources contribute more to total toxicity weighted emissions than any other category, in fact almost half of the total. The June 2005 version of the MATI Inventory yielded a much more reasonable distribution of emissions between source categories based on comparisons to the 1996 NATA emissions and 1990 VOC Inventory for the Maine SIP. There is considerable variability in the estimates for point source due in part to different definitions for point sources. NATA used the definition of major HAP source, and MATI has included in the point source category many that would otherwise be grouped in the area source category. .

Table 1: Percent of Emissions by Source Category

	Point	Area	On-road	Off-road
MATI – 10/7/05	47	21	20	12
MATI – 6/2/05	27	38	21	14
NATA – 1996*	4	36	23	37
Me VOC 1990*	14.5	34	45	6.5

* Emissions only – not toxicity weighted emissions; definition for point source (major) is different from what has been used in MATI

The October 7 draft MATI Inventory indicates that 65% of Maine's air toxicity weighted emissions are attributed to acrolein, 10 times greater than the number 2 ranked compound. The October 7 draft MATI Inventory uses two different emission factors for acrolein, the AP-42 factor for industrial combustion at non-pulp and paper facilities and the National Council for Air and Stream Improvement (NCASI) factor for wood fired boilers located at pulp and paper mills. If the AP-42 emission factor were used consistently for all large wood burning boilers, acrolein would then account for 91% of Maine's total toxicity-weighted emissions. This distribution leads to the inevitable conclusion that the source from which to seek reductions is the large wood-fired boiler group, when in reality, gasoline and diesel engines are traditionally significant source categories to consider.

Competing Emission Factors

Note: This memo uses the scientific notation convention x.xx E -0y to represent small numbers. The value following the E represents the number of decimal places to the left of the indicated decimal point, i.e. 9.47 E-06 = 0.00000947. This could also be presented as 9.47×10^{-6}. A value of 1 E-03 is therefore 100 times greater than a value of 1 E-05.

The June 2005 MATI Inventory estimate for acrolein was based on the Memorandum from Eastern Research Group, Inc. (ERG Memo) to EPA, dated October, 2002. That emission factor was 9.47 E-06 lbs/MMBtu for uncontrolled emissions from all boiler types burning wood/other biomass. Subsequently it was found that the ERG Memo also included an emission factor of 1.71 E-03 lbs/MMBtu for uncontrolled emissions from "other" boiler types burning "wood". The ERG data suggested that emissions from wood and other biomass is expected to be 180 times less than from a boiler burning only wood, which did not seem reasonable. This triggered a search for other emission factors and evaluation of the data to support the various emission factors. Two other emission factors were identified: the AP-42 factor = 4.04 E -03 lbs/MMBtu, and the NCASI emission factor = 7.8 E-05 lbs/MMBtu. The October 7 MATI uses the AP-42 emission factor for large wood boilers (non-pulp and paper) which is 426 times greater than the factor that was used for the June draft of the MATI Inventory.

The magnitude of the differences in emission factors and the significant impact the selection of the emission factor would have on the overall MATI Inventory triggered an evaluation of the emission test data that was used to develop each of the

factors.

Table 1. Emission Test Data to Support AP-42 Emission Factor

T	ID	FUEL TYPE	FIRING CONFIGURATION	CONTROL DEVICE	NUMBER OF RUNS	RUN AVERAGE
	B12	Dry Wood	Stoker	Mechanical Collector	1	4.26E-05
	B23	Wet Wood	Stoker	ESP	1	3.15E-05
	B33	Dry Wood	Not Reported	Mechanical Collector	1	3.80E-06
	B42	Dry Wood	Stoker	Mechanical Collector	1	1.43E-05
	B50	Wet Wood	FBC	Mechanical Collector, Uncontrolled	2	2.30E-02
	B78	Wet Wood	Stoker	Wet Scrubber	1	1.10E-03
					AVG	4.04E-03
					MIN	3.80E-06
					MAX	2.30E-02
					STD DEV	9.31E-03
					COUNT	6

Table 1 shows the stack test results used to develop the AP-42 emission factor (4.04 E-03 lbs/MMBtu). As shown the high emission test is 6,052 times greater than the lowest emission test, which led me to conclude the data was not normally distributed so that the arithmetic mean was not a valid statistic to represent the full data set; i.e. the high number is so large that it totally dominates the average to the extent that the average emission rate is 4 times higher than the second highest emission rate in the dataset. NCASI submitted additional documentation as to why the arithmetic mean was inappropriate (see Attachment 1). However, USEPA responded that the arithmetic average is appropriate and typically used in developing AP-42 emission factors, which assures a degree of conservatism in applying the factor to other sources.

The two high emission tests in the AP-42 dataset could also have been rejected on the basis that the control technology does not match the controls in place at Maine's large wood-fired boilers. The large wood-fired co-generation boilers typically have a mechanical collector in combination with ESP or fabric filter (baghouse). If these non-representative test results were eliminated from the dataset, the resulting data would be closely grouped with a range of 11.2 from low to high with an arithmetic average value of 2.31 E-05 lbs/MMBtu.

EPA provided a detailed spreadsheet entitled "tblAcrolein for Susan Lancy3" which is now rolled into the spreadsheet entitled "Acrolein EF Analysis3" which has been provided to the ATAC. This spreadsheet provides the backup data used to support the ERG emission factor for acrolein. I have reviewed the emission factors and other data presented in the spreadsheet and sorted the data into tests that I believe are representative of the wood-fired power plants as part of the MATI inventory process and those that I propose to reject. Table 2 lists those that I believe are representative.

Table 2. Acrolein Test Results Representative for Wood-Fired Boilers

Facility	*Capacity*	*Emission Factor (lbs/MMBtu)*	*Fuel*
Delano Energy Corp	31 MW	8.52E-06	Biomass
Inland Paperboard	270000 lbs steam	6.35E-05	gas/wood
BVTBC Genesee	38 MW	1.05E-04	wood + C&D + waste
BVTBC Genesee	38 MW	4.08E-07	wood + C&D + waste
BVTBC Genesee	38 MW	3.19E-06	wood + C&D + waste
Bernhardt Furniture		6.81E-05	wood + <15% adhesives
BVTBC Genesee	38 MW	4.05E-07	wood + C&D + waste
BVTBC Genesee	38 MW	1.04E-04	wood + C&D + waste
BVTBC Genesee	38 MW	3.18E-06	wood + C&D + waste
BVTBC Genesee	38 MW	4.64E-06	wood + C&D + waste
Craven County Wood	45MW	1.27E-04	Wood
Average		4.44E-05	

It is noteworthy that test results for several facilities that appear to be representative were eliminated on the basis of non-detects in the samples (i.e. Inland Paperboard, Yorktowne, Northern States Power, and Wood-Mode). Had 0 or ½ of the detection limit been reported for these 8 tests, the average would have been considerably lower.

Table 3 lists those test results that I propose to reject and the reason that I believe they are not representative of the wood-fired boilers for which the MATI Inventory Subcommittee is seeking an appropriate factor.

Table 3. Non-representative Acrolein Emissions and Basis

Facility	***Capacity***	***Reason for Rejection***
Minnesota Power	69 MW	Fuel was coal
Minnesota Power	69 MW	Fuel was coal
Baldwin Power	568 MW	Fuel was coal
Baldwin Power	568 MW	Fuel was coal
Ohio Edison - Niles	108 MW	Fuel was coal
Ohio Edison - Niles	108 MW	Fuel was coal
Ohio Edison - Niles	108 MW	Fuel was coal
EPRI Site 16	500 MW	Fuel was coal
Blandin Paper	195000 lbs	Fuel was coal/wood
Champion International	250000 lbs	Fuel was coal/wood

Kern Oil & Refining		Fuel was oil
Inland Paperboard	300000 lbs	Fuel was oil/industrial sludge/gas
BP Chemical		Fuel was process gas
BP Chemical		Fuel was process gas
BP Chemical		Fuel was process gas
BP Chemical		Fuel was process gas
Mead		No fuel information, Unit has cyclone, ESP, Venturi; Stack temp only 145°F
Craven County Wood	45 MW	Fuel included 20% railroad ties
Georgia Pacific Corp		Testing was done on CFB "dump" stack
Georgia Pacific Corp		Testing was done on CFB "dump" stack

Tab 3 "Only Wood etc." of the "Acrolein EF analysis 3" spreadsheet shows that the average emission factor from wood only in the data set was 8.52 E-06 lbs/MMBtu.

Conclusion:

Table 4 provides a summary of the possible emission factors that could be applied to large wood burning boilers in the MATI Inventory.

Table 4. Comparison of Alternative Acrolein emission Factors

Factor	Value	Units	Notes
AP-42	4.04 E-03	Lbs/MMBtu	Used in MATI for large wood combustors other than at pulp and paper mills – 10/7/05
ERG -2002 - wood	1.71 E-03	Lbs/MMBtu	Combustor type = other
NCASI	7.8 E-05	Lbs/MMBtu	Used in MATI for pulp and paper mills -10/7/05
ERG – 2002 -biomass	9.47 E-06	Lbs/MMBtu	Used in earlier versions of MATI – represents all boiler types - uncontrolled
AP-42 adjusted	2.31 E-05	Lbs/MMBtu	AP-42 data set eliminating tests from uncontrolled and wet scrubber controlled boilers; or because they are statistical outliers
AP-42 median	3.7 E-05	Lbs/MMBtu	Statistic for distribution that is not normal or log-normal
EF Analysis tab 3	8.52 E-06	Lbs/MMBtu	Wood combustion only
ERG adjusted	4.44 E-05	Lbs/MMBtu	Representative test data as shown in Table 2

I recommend the use of the NCASI emission factor (7.8 E-05 lbs/MMBtu) for all wood-fired boilers, not just those at pulp and paper mills. That factor is conservative from the perspective that it is somewhat greater than emission factors predicted by correcting either the AP-42 or ERG supporting test results to representative boiler types, fuel and control technology. Use of the NCASI factor for all wood burning boilers would not only make the MATI Inventory internally consistent, it would result in a more reasonable distribution of toxicity-weighted emissions between point, area and mobile source categories and a priority ranking list where the uncertainty of the acrolein data does not unreasonably elevate its importance relative to all other air toxic compounds on the list.

Attachment 1

NCASI Memo on Acrolein

NORTHERN REGIONAL CENTER

Western Michigan University

A-114 Parkview Campus, Mail Stop 5436

Kalamazoo, MI 49008

(269) 276-3550

FAX: (269) 276-3551

NATIONAL COUNCIL FOR AIR AND STREAM IMPROVEMENT, INC.

To: Mike Barden

From: Jay Unwin

Date: September 2, 2005

Subj: Statistics on Acrolein emission factors

You had asked about DEP's calculation of the arithmetic mean of emission rates to derive an emission from wood-fired boilers. You indicated that the database DEP is using is as follows:

4.260E-05, 3.150E-05, 3.800E-06, 1.430E-05, 2.300E-02, 1.100E-03

The arithmetic mean of these values is 4.03E-3.

The arithmetic mean is generally used to represent the central tendency of a normally distributed popul standard (Kolmogorov-Smirnov) goodness-of-fit test on these data and found that the null hypothesis t a normal distribution can be rejected ($p<0.01$). The null hypothesis that the sample is from a lognorma logarithms of data normally distributed), often associated with environmental data, could not be rejecte figures below illustrate. The closer the data fall to a straight line, the more likely the underlying popul distributed.

If the data are considered lognormally distributed, the appropriate central tendency statistic is the geom

If no particular distribution is assumed (other than it being monomodal) then the appropriate central te
median, 3.7E-5.

I am unfamiliar with the basis for the ERG and NCASI emission factors you cited (7.8E-6 and 7.8E-5,
cannot comment on their validity. However, it would seem that further consideration of these factors i
given that they are closer in value to the geometric mean and median cited above than they are to arith
proposes to use.

Memo

Date: February 27, 2006

To: David Wright, Director Air Toxics and Emissions Inventory Program

Cc: Tammy Gould

MATI Stationary Source Committee

From: David Dixon

Subject: 2006 HAP Reporting Guidance

I offer the following comments in response to your inventory guidance memo dated February 1, 2006, used for estimating emissions from fuel burning and the three spreadsheets posted by the Department i values that will be used in the absence of appropriate factors listed in the EPA FIRE database. I offer t revisions to the guidance can be incorporated prior to the Department's training program for facilities r of the HAP inventories for calendar year 2005.

Distillate Oil

I was disappointed that the DEP spreadsheet "HAP_EF_Distillate_v3" relies on the AP-42 emission fa spent considerable time and energy in the MATI process and introduced updated distillate oil analysis mercury content of distillate oil today is less than 5 ppb and reached agreement on a compromise emis lbs/million gallons (AP-42 factor is 4.2E-04 lbs/1000 gallons, i.e. 0.42 lbs/million gallons). The MAT loaded into the i-STEPS calculation.

Acrolein is the HAP that triggers the need for a source combusting distillate oil to report. Neither the I 42 for external combustion boilers contains an emission factor for acrolein. The factor the Department for this source category is based on the emission factor for stationary internal combustion engines. Th from internal combustion engines is very different from boilers; therefore this substitution is not appro true for the next greatest factor, acetaldehyde. That is, there is no EPA emission factor for external co burning distillate oil so the proposed Guidance substitutes a value appropriate for an internal combusti

The next factor that would trigger the reporting threshold is ammonia. While there is no emission fact there is a factor for uncontrolled distillate oil combustion listed in the FIRE database; the same value u spreadsheet. Therefore the amount of distillate oil that would have to be burned to trigger the reportin 2,500,000 gallons. Based on the fuel use sheet from your spreadsheet "Copy of HAPS from Fuel Com source combusted 2,500,000 gallons of distillate oil although two sources were close. Only 5 sources 1,000,000 gallons and only 6 exceeded the 772,000 gallon threshold identified in the Guidance memo.

I think it is important to eliminate the factors substituted for internal combustion engines because usin significantly exaggerate the amount of HAPS contributed from distillate oil and it leads to the impressi somehow more hazardous than residual oil, i.e. a facility triggers reporting at 772,000 gallons of distill reporting until it reaches 1,600,000 gallons of residual oil (according to the Guidance Memo).

Residual Oil

I have reviewed the FIRE data base and the DEP proposed substitutions and can not identify a HAP fa combustion that would trigger reporting at 1,600,000 gallons as stated in the Guidance Memo. The lo could find is for ammonia with an emission factor of 0.8 lbs/1000 gallons which results in a minimum reporting at 2,500,000 gallons. Note that other entries for ammonia all involve selective catalytic redu selective non-catalytic reduction (SNCR), both of which are NOX control technologies which inject ar exhaust gas and therefore are not representative of residual oil-fired boilers. To the best of my knowle residual oil fired boilers in Maine using either SCR or SNCR.

I would also suggest removing methane from the spreadsheet "HAP_EF_Residual_v3" because methai appropriate to use the methane emission factors for calculation of greenhouse gas emissions. Includin and also the greenhouse gas emissions calculator could result in double counting of methane emissions HAP spreadsheet will lead people to believe that it is a HAP.

Based on the fuel use sheet from your spreadsheet "Copy of HAPS from Fuel Combust 2003(4b)", onl combusted more than 2,500,000 gallons of residual oil.

Wood

The reporting threshold for wood stated in the Guidance Memo is 250 tons/year which seems to be bas value of 278 tons/year based on acrolein. It bears repeating that the FIRE database includes an emissic lbs/ton of wood for boilers identified as having "miscellaneous control". The AP-42 factor is 4.0 E-03 translates to 3.6E-02 lbs/ton.

The DEP proposed substitution factors include ammonia at 0.31 lbs/ton of wood burned. Ammonia is being emitted from wood boilers and ammonia from wood burning sources listed in the FIRE database source categories using SCR or SNCR for control of NOx emissions. Since I believe that no wood bur SCR or SNCR, the use of the proposed substitution factor for all wood burning boilers is not appropria

The minimum reporting threshold for wood boilers is so low that many sources that are below the air e threshold should report. It is unfair for the Department to threaten enforcement action on small wood l lumber mills where the facility has not historically reported. This is especially troubling since the prot use of an acrolein emission factor that we believe greatly overstates actual emissions.

General

The MATI consensus document clearly identified a role for the Science Advisory Subcommittee to rev Department in providing guidance for the 2005 HAPS emission statements so I believe it is appropriat addressed in the MATI process.

Since the majority of oil burning sources (both residual and distillate) will not trigger the reporting thr threat for failure to sign and return emission factor sheets or to create i-STEP emissions at the process for all but a handful of very large oil combustion sources. It seems like it should be easy for sources tc they are below the threshold based on the work the Department has done in preparation for the filing o updates; however, they should be encouraged to do so voluntarily. There should be no penalty for goi Chapter 137 requires for reporting.

Finally, I think is important to initiate discussions with the Toxics Use Reduction program and the Tox program to discuss ramification for calculating HAP emissions from fuel combustion that have not bee to those programs. It is important not to release a report that shows significant increases in emissions emitted from processes not previously identified.

I look forward to discussing these comments on the next Stationary Source Committee conference call

Dirigo Environmental Consultants initiated efforts to revise DEP guidance on reporting of HAPs following sequence of messages. HAP Corrrespondence

Dirigo Requests Guidance on 2004 Annual Emissions Statements.

March 27, 2005

David Wright
Director, Air Toxics and Inventory Section
Bureau of Air Quality
State House Station #17
Augusta, Maine 04333

Subject: Guidance on Filing Annual Emission Statements for 2005

Dear David:

As we have discussed on several occasions, I have been very defensive when the Bureau's quality cont inventory statements have indicated errors in submittals that I have prepared for clients when in fact th to using the emission factor built into the software package (i-STEPS) that the Bureau has selected as t reporting. In order to avoid disputes over the correct factor and approach, the Bureau should issue spe its listserver and notifications to sources concerning the submittal for calendar year 2004. Listed belov on emission statements that I prepared. I am sure there are others which should also be included.

1. **NOx emission factor for boilers**: I consistently used the i-STEPS NOx emission factor of 47 lt several #6 oil fired boilers. The i-STEPS factor is also the AP-42 factor which is an A-rated emi review by licensing engineers suggested a change in every case with proposed values of 55 lbs/1 lbs/1000 gallons and 90 lbs/1000 gallons for different sources. The staff explained that they beli number was too low but in all cases failed to provide any documentation for the proposed higher factors. The responsible party is then required to sign a certification statement "The data present the best available information and is true and accurate to the best of my ability". Absent any cor monitoring data, stack test information, or technical supporting information from the Departmen alternative recommended emission factor, I have to say that the A-weighted emission factor (and represents the "best available information". If the Bureau wants facilities to use a factor other th the required software, it should provide guidance prior to filing and a technical basis for it or am statement to say the estimates are based on the best available information "or emission factors pr of Air Quality".
2. **VOC emission factors for boilers**: In some cases alternative emission factors were also propos comments as per item 1.
3. **Use of allowable emission limit for particulate matter**: Multiple reviewers used the Chapter particulate emission rate instead of the i-STEPS and AP-42 emission factor for particulate matte emission limit results in emission estimates much greater than using the fuel-specific emission fa purpose of the annual emission statement is to provide an estimate of actual emissions, use of th actual emissions is appropriate.
4. **Use of allowable fuel sulfur content**: In one case the QA review proposed using the Chapter 1(content in lieu of the actual average sulfur content as calculated from records of fuel deliveries. the annual emission statement is to provide an estimate of actual annual emissions, fuel sulfur cc estimate for actual emissions.
5. **Annual fuel use**: During last years' training, participants were instructed to not use the 12 mont for the annual fuel use but rather use December from the previous year so that the winter season accurately characterized. That instruction has not been widely distributed so that most reports ar calendar year fuel use. The Bureau should clarify which method should be used.
6. **Greenhouse gas emission factor for wood**: The spreadsheet provided by the Bureau for estima greenhouse gases provides a value of 3,814 lbs/CO_2 per ton of wood. The proposed factor was

   National Council for Air and Stream Improvement (NCASI) and is based on wood on a dry-weig therefore appropriate for dry wood with a heat content of 8500 to 9000 Btu/lb. Most wood burn to report emissions under Chapter 137 are not burning dry wood but rather wood whose heat cor 4500 Btu/lb. This results in two consequences: (1) the amount of CO_2 estimated to be emitted i

by a factor of close to 2, and (2) the amount of wood burned in reported facilities is similarly ov
has become an issue with respect to mercury emission estimates where there is a substantial diff
wood burned between the Chapter 137 reports and the DOE, Energy Information Administration
the basis for state-wide energy use. Guidance should be provided to facilities that the factor is a
wood or the Bureau should provide a factor for 50% moisture wood as is provided in the referen
documentation.

Thank you for the opportunity to provide some input prior to the scheduled training in advance of the f
2004 emission statements. I believe that if you supplement the scheduled training with guidance on e
inform sources in advance of reporting, consistency will be greatly enhanced. I remain available to wo
staff to improve the technical credibility of the emissions inventory.

Sincerely yours,

Dirigo Environmental Consultants

David W. Dixon, P.E.

Proposed Climate Change Action Plan Is Not the Best Public Policy for Maine

A copy of the Maine Climate Change Action Plan is available at: http://maineghg.raabassociates.org/fi

The Plan now proposed will impose higher costs on Maine consumers and businesses alike with no co
benefit to the dynamics of global climate change. With a Company name of Dirigo, I clearly agree tha
with good public policy. Good public policy, however, must weigh the public benefits against the inv
private resources to combat global warming and proceed only when such investment is shown to be m
investment in health, education, and all other services. In fact, the Department's Plan prioritizes the re
gas emissions above air quality strategies to reduce VOC and NOx emissions which are known to cont
concentrations of ozone along southern coastal sections of Maine. Similarly, the proposed Plan ignore
and recommendations being developed by the Maine Air Toxics Initiative (MATI) stakeholder process

The Department's Plan purports CO_2 reductions to achieve the legislated targets but fails to acknowled
implementation. Even those options which will result in net long-term energy savings come with a pri
sufficient to report a positive rate of return over the next ten or twenty years. The plan must delineate
each option, who will be required to make the investment, who will be the beneficiary and how many
be required before the option achieves revenue neutrality. To demonstrate that the Plan is good public
should show total annual costs (and CO_2 reductions) for each of the 54 proposed options starting in 20
beyond.

Strategies are made to sound cost effective by presenting them in terms of dollars per ton of reduction emissions as has been done for demonstrating the cost effectiveness of strategies to control emissions c for years. This is akin to comparing apples and oranges. For example, CO_2 emissions from burning 1(amounts to 25,000 lbs while NOx emissions, one of the contributors to our ozone nonattainment probl 40 lbs from the same 1000 gallons.

The Plan proposes costs associated with reducing emissions from existing oil fired units with a cost-ef $1,325/1000 gal. Implementation of the proposed recommendations therefore equates to a cost of more t every gallon of oil replaced. The Department should consider this cost in context with other programs the proposed costs to the NOx RACT or VOC RACT programs which mandate reductions that are cos ozone pollution for which the coastal areas continue to be in nonattainment. The same 1000 gallons o result in 47 lbs of NOx emissions. RACT controls have been found to be unwarranted at costs over so $5,000 - $10,000/ton. Using $8,000/Mton means that the RACT level of control for NOx is approxim $171/1000 gallons. Thus, in terms of air quality management, implementation of the greenhouse gas c the electricity sector have the effect of setting the greenhouse gas emission reduction program at 10 tin the coastal Maine ozone nonattainment program.

Recommendations to re-start non-operating and to subsidize existing biomass electrical generation faci opposition to the goals advocated by the DEP's own Air Toxics Advisory Committee. The MATI pro relative "toxicity" of emissions for various source categories. Wood burning sources are high on the li dominate the area source category. For example, on a Btu basis the amount of manganese emitted fro boiler is 80 times what it would be from a residual oil-fired boiler. Also high on the area source list ar saws and other 2-cycle gasoline engines, whose emissions would increase with any strategy increasing harvested.

Any increase in wood burning will be associated with a significant increase in air toxic emissions com the same electricity with conventional oil burning. The GHG ranking system should take such negati impacts into account when comparing one option against another or individually before the option is s that a best available control technology (BACT) analysis requires consideration of other environmenta the cost-effectiveness of a candidate air pollution control technology.

The Plan goes beyond all other state efforts by seeking to reduce black carbon emissions from diesel e options that will increase particulate emissions from biomass burning facilities without even considerir deleterious effect that the black carbon content of the particulate emissions may have.

One danger of the local approach to a global issue is the tendency to fail to account for all impacts reg world they occur. Strategies advancing the use of natural gas and liquefied natural gas (LNG) should losses in the exporting nations as well as the energy required to liquefy and transport such fuels. Full is critical for good public policy.

The Department should consider an alternative approach of initially implementing only those strategie cost-effectiveness value meaning that if funded the option will provide GHG reductions beyond the di a strategy does not achieve the legislative targets, neither does full implementation of all consensus rec other states have taken this approach, calling it the "no regrets" strategy. That is there will be no regre implemented because of the positive impact it will have on energy efficiency or conservation. Meani Action Plans must be International in scope and be based on good science.

Low Sulfur Oil Limits Imposed Through Air Emission Licenses

The Bureau of Air Quality has been ratcheting down the sulfur content for #2 oil on new or renewed a

0.3% sulfur (S). Distillate (#2) oil has a nominal sulfur specification of 0.5% sulfur (S) and much of it requirement. The net effect of this policy is much paper work to document compliance with no reducti dioxide emissions. The reason is simple. All #2 oil entering Maine is less than 0.5% S and much is be license requires that a specific licensed source must get its fuel from a tank storing the compliant low S and suppliers to keep records to document that its fuel came from a low sulfur cargo. Other sources co average sulfur oil. It is possible that there could be a period of tight supplies when 0.3% S is not readil could then be sold at a premium. For the most part; however, this policy amounts to no more than redu one stack while increasing it from another for no net environmental benefit. In fact, this policy results dis-benefit; burning the best quality oil for licensed sources such as remote asphalt batching plants mea sulfur loads are burned by the smaller, unlicensed, sources such as commercial and residential building where there is more public exposure. Both the Bureau of Air Quality and licensed sources commit sig assure compliance. Many sources end up in the position of possible violation if conforming fuel is una

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Correspondence with DEP concerning Greenhouse Gas emission factors for biomass burning in boilers

Archieved News and Views